AMSAT News Service Weekly Bulletins
Issue: ANS-219
Date: 2005-08-07
Sources: amsat-ans-2005-ans-219-weekly.txt

AMSAT NEWS SERVICE
ANS-219

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

In this edition:

* AMSAT-NA Space Symposium Announcement
* PCSAT2 Installed and Activated on the ISS
* AMSAT-UK Reports PO-28 to Return to Amateur Satellite Service
* September 27 is the New Launch Date for SSETI
* Satellite DXpedition to JW-Svalbard Announced
* OSCAR-11 is Still Alive
* New OSCAR FM Help Page
* AMSAT-Argentina Unveils On-line Amateur Radio Calculator
* AMSAT Awards This Week
* ARISS Status for the week of August 1, 2005
* PCSAT2 Telemetry Guide

SB SAT @ AMSAT $ANS-219.01
AMSAT-NA Space Symposium Announcement

AMSAT News Service Bulletin 219.01
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.01

Space! Ham radio goes there and you can join in the fun! Come to the AMSAT Technical Symposium and Annual Meeting this fall in lovely Lafayette, Louisiana. Education and technical sessions begin on Friday, the 7th of October. Technical, field ops, and the IARU forum follow through Sunday the 9th of October. Enjoy the best of Acadian Louisiana with Friday's "Shrimp Boil," Saturday's Banquet with great prizes, and Sunday's "Swamp Tour."

Register on line! For more, see:
http://www.amsat.org/amsat-new/symposium/.

[ANS thanks the AMSAT Symposium team for the above information]

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SB SAT @ AMSAT $ANS-219.02
PCSAT2 Installed and Activated on the ISS

AMSAT News Service Bulletin 219.02
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.02

PCSAT2 was installed on the exterior of the International Space
Station and was activated on August 3, 2005.

The PCSAT2 mission is intended as an opportunity to augment existing
ARISS communications experiments with an external autonomous communi-
cations payload. In this regard, it has several potential uses:

* A UI-Digipeater to help ease congestion on the currently shared
  ARISS PMS (Packet Mail system)

* A PSK-31 transponder for multi-user communications to improve
  accessibility for schools and ARISS outreach programs.

* An FM Voice repeater for full duplex crew communications to
  facilitate crew-to-school ARISS contacts.

* Routine Telemetry on the spacecraft systems

The current mode available for amateur radio use activated on
August 3 includes 1200 and 9600 baud telemetry on 437.975 +/- 9 KHz
of Doppler shift. Conventional 1200 baud APRS IGate stations are
encouraged to tune over to the downlink and feed anything you capture.

9600 baud capable stations are encouraged to capture the special 9600
baud downlink and email to PC2@grc.nasa.gov and if they have IGate
software (or the latest ALOGGER 2.0.2) to feed it live to:
satgate.aprsca.net port 20150. (ALOGGER2.02 is available from:
http://www.billdiaz.dynip.com/)

Please, no transmissions on the uplink. The PCSAT2 Team will announce
when the satellite is open for general use in a few weeks.

The PCSAT2 web pages are temporarily unavailable because the server at
the U.S. Naval Academy is without power for several days. When this
server is restored see:
http://web.usna.navy.mil/~bruninga/pcsat2.html

An on-line overview of PCSAT2 telemetry can be found at:
http://www.pcsat2.info

1200 baud telemetry is just an occasional packet every 10 or 60
seconds. 1200 baud stations can simply feed their downlinks directly
into the global APRS system like normal. These will help update the
LIVE PCSAT2 telemetry page by G4DPZ at:
http://www.pcsat2.info/PCSat2Web/RealTime.jsp

PCSAT2 was mentioned at SlashDot ...
http://science.slashdot.org/science/05/08/04/0053242.shtml?tid=160&tid=126

Packets seen from PCSAT2 can be reviewed at:
http://www.findu.com/cgi-bin/pcsat2.cgi

A screen shot of both the 9600 bps and 1200 bps decoded data
as seen by Simon, 9W2QC, can be seen at:
http://www.9w2qc.net/pcsat2/

Tuning hints for doppler shift: At AOS the UHF signal from PCSAT2
will be as much as 9 KHz high and at LOS will be as much as 9 KHz
low. But at these times the doppler is *changing* the least and
this is probably the best time to catch a complete file without any
tuning glitches.

In the middle of the pass, the Doppler rate of change is the highest

and although the signal will be strongest, over the center 2 minutes the doppler will shift as much as 8 KHz! This is why we expect to have to combine files from multiple users to get a complete set of data.

[ANS thanks Bob, WB4APR, and Dave, G4DPZ for the above information]

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SB SAT @ AMSAT $ANS-219.03
AMSAT-UK Reports PO-28 to Return to Amateur Satellite Service

AMSAT News Service Bulletin 219.03
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.03

PO-28 (POSAT-1), Portugal's first satellite, launched 12 years ago, will be turned over to Amateur Radio use in the very near future. That was the word July 30 from AMSAT-UK Secretary Jim Heck, G3WGM, during the AMSAT-UK International Space Colloquium in Guildford, England.

Launched September 25, 1993, the satellite operated as a packet store-and-forward BBS (9600 baud FM FSK) on Amateur Radio frequencies for several weeks in early 1994. Over the years, PO-28's primary usage has been commercial, although plans have called for eventually shifting its operation to ham radio use. G3WGM reports that following lengthy negotiations it has been agreed that the satellite can be switched permanently to amateur frequencies. The changeover is expected to take a couple of weeks.

The Portuguese satellite was built at the University of Surrey as part of a collaborative satellite technology program that involved industry and academe. Uplink frequencies will be 145.925 and 145.975 MHz. Downlink frequencies will be 435.250 and 435.275 MHz. More information on PO-28 is on the AMSAT Web site http://www.amsat.org/amsat/sats/n7hpr/po28.html.

Uplink Frequencies: 145.925 and 145.975 MHz
Downlink Frequencies: 435.250 and 435.275 MHz

Orbit: 822 x 800 km, 98.6 deg inclined, sun-synchronous.

Transponder capabilities include FM repeater and 38k4 data. If you want to hear how loud this satellite is, listen on 429.950 until the change back to amateur radio service.

Keplerian elements for PO-28 are not currently contained in the AMSAT keps bulletins, but can be found at Celestrak in amateur.txt using the name "POSAT". Users of Space Track should query the NORAD Satellite ID number 22829. The name listed by Space Track is "EYESAT A".

[ANS thanks Jim, G3WGM, Trevor, M5AKA, and the ARRL Letter for the above information]

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SB SAT @ AMSAT $ANS-219.04
September 27 is the New Launch Date for SSETI

AMSAT News Service Bulletin 219.04
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005

To All RADIO AMATEURS
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Graham, G3VZV, has advised AMSAT that the revised launch date for SSETI Express and the other satellites on the DMC3 COSMOS launch has been confirmed as September 27th - so please keep those fingers crossed!

[ANS thanks Graham, G3VZV, for the above information]

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SB SAT @ AMSAT $ANS-219.05
Satellite DXpedition to JW-Svalbard Announced

AMSAT News Service Bulletin 219.05
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
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Howard Long, G6LVB, will be travelling to Svalbard (JW prefix, 78.15 deg N, 16.02 deg E) around the 26, 27 and 28 August timeframe. The main purpose of the trip will be to install upgrades to a satellite station at www.svalsat.com. Howard intends to bring LEO satellite gear with him.

Due to its northerly location, Svalbard has coverage to Canada and the North Eastern US as well as Japan.

Howard states, "I will definitely be active on AO-51, SO-50, AO-27, PO-28 (let's hope) and if I have room for SSB equipment I will operate FO-29, VO-52 and possibly AO-7. The ISS never travels far enough North for me to take a shot at it. There are no plans to take any HF gear."

[ANS thanks Howard, G6LVB, for the above information]

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SB SAT @ AMSAT $ANS-219.06
OSCAR-11 is Still Alive

AMSAT News Service Bulletin 219.06
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.06

Clive Wallis wrote, "Very many thanks for all the recent reports of OSCAR-11, on AMSAT-BB and by direct e-mails. I received the good news, on Saturday morning, while at the AMSAT-UK Colloquium. This was entirely unexpected!

When I returned home on Sunday, I heard the passes at 17:21 & 19:02 UTC, and have heard many others since.

Signals seem to be weaker than usual. However,since I last heard the satellite on 30 April, I've reinstalled my antennas , which makes comparisons difficult.

All the analogue telemetry channels, 0 to 59 are zero, ie they have failed. The status channels 60 to 67 are still working. One bit in channel 62, DSR mode, has changed from WRITE to READ. DSR is the

Digital Store & Readout experiment. This could be significant if the
experiment is still drawing current, but the other status bit indicates
thet it is switched OFF.

The on-board clock is now showing a very large error. It has lost
approximately 15 days since 30 April. I'll be monitoring the clock
closely to see whether it changes at a constant rate, in future passes.

Eclipses should end around mid August. That should help the satellite
to continue transmitting.

If the watchdog timer is still working, the satellite should switch OFF
in the next 10 to 20 days. I would appreciate if listeners could just
make a note of the DATE & UTC time when they hear the satellite, so that
when it switches OFF we can determine when it was last heard. Please
post your reports to AMSAT-BB or e-mail me direct g3cwv@amsat.org, but
NOT until it switches OFF!

[ANS thanks Clive, G3CWV, for the above information]

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SB SAT @ AMSAT $ANS-219.07
New OSCAR FM Help Page

AMSAT News Service Bulletin 219.07
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.07

John Bailey, KG4BNP, reported, "I have finished updating the KG4BNP FM
Oscar help website. I would appreciate feedback from users. We use it
locally in Tallahassee, FL to help new hams break into the world of FM
satellites. Mypersonal email is kg4bnp@earthlink.net."
For FM Oscar Help Webpage see: http://www.home.earthlink.net/~kg4bnp

[ANS thanks John, KG4BNP, for the above information]

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SB SAT @ AMSAT $ANS-219.08
AMSAT-Argentina Unveils On-line Amateur Radio Calculator

AMSAT News Service Bulletin 219.08
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.08

AMSAT-Argentina has added an amateur radio calculator feature to their
web page. Do you need to calculate space attenuation, height vs coverage,
coordinates of geosats, the resistor color codes, wavelength, resonance,
Power budget, coil turns for, look up a location, coax length/type & loss?

Try the easy, on-line calculators at http://www.amsat.org.ar?f=h

[ANS thanks Pedro, LU7ABF, for the above information]

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SB SAT @ AMSAT $ANS-219.09
AMSAT Awards This Week

AMSAT News Service Bulletin 219.09
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.09

Bruce Paige, KK5DO, AMSAT Director Contests and Awards, says, This week, congratulations go out to:

Jim Wright, WA4IVM, for earning the 51 on 51 Award #31

To see all the awards visit http://www.amsat.org.

[ANS thanks Bruce, KK5DO, for the above information]

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SB SAT @ AMSAT $ANS-219.10
ARISS Status for the week of August 1, 2005

AMSAT News Service Bulletin 219.10
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.10

ARISS Status for the week of August 1, 2005

1. SuitSat Status
The ARISS-Russia team requested that a few fabric ARISS logo patches be provided to place on the bags which will contain the SuitSat hardware during flight. The U.S. team ordered and received the patches and will deliver these to Sergey Samburov at the U.K. meeting. Integration and testing continue as the team works on the hardware flight certification.

2. PCSAT2/MISSE5 Delivered to ISS
PCSAT2 flew on the Return to Flight STS-114 mission, which launched Tuesday, July 26. It was deployed during the third EVA on August 3. An on-orbit checkout needs to be performed before it becomes available to users on the ground. This may take a week or two. The project is described in detail on Bruninga's website, "PCSAT2 - External ISS Experiment in the Amateur Satellite Service." See the site for updates and telemetry data. (Occasional outages of this server may occur, please re-try later if you are not successful.)
http://www.ew.usna.edu/~bruninga/pcsat2.html

3. ARISS International Meeting, Guildford, U.K.
The AMSAT-UK Colloquium was held at the University of Surrey in Guildford, U.K. on Friday, July 29 through Sunday, July 31. The ARISS International Meeting convened August 1 - 2. Information on both meetings may be found on the following website:
http://www.uk.amsat.org/Colloquium/default.php

[ANS thanks Carol Jackson, KB3LKI for the above information]

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SB SAT @ AMSAT $ANS-219.11

PCSAT2 Telemetry Guide

AMSAT News Service Bulletin 219.11
From AMSAT HQ SILVER SPRING, MD.
August 7, 2005
To All RADIO AMATEURS
BID: $ANS-219.11

Bob Bruninga, WB4APR, of the U.S. Naval Academy Satellite Lab, the developers of PCSAT2 released a preliminary guide for the reading and understanding of the PCSAT2 telemetry.

Here is what to look for on the PCSAT2 telemetry screen. Dave, G4DPZ, has done an *fantastic* translation of the original DOS version of PCSAT2 telemetry decoder to a real-time web format:

http://www.pcsat2.info/PCSat2Web/RealTime.jsp

The telemetry is in 4 packets, numbered 00,01,10,11. That is why every telemetry channel has one of those numbers by it so you can see which packet contains which value. They are transmitted every 10, or 20, or 60 seconds depending on the rate we need to receive the telemetry. This means it can take 40 sec, or 1 min 20s or 4 minutes to get a complete snapshot.

The upper right shows the TIME of each of these 4 packets last heard. Colors show latency. Brighter colors are more recent. Every packet has a serial number which is incremented each packet.

The raw packet is at the top and you can see the SOURCE callsign of who IGAted it into the network.

Transmitters are bursty packet types and usually will show 0 since it is rare to capture a 1 second current when the telemetry samples. Looking at the temperature of the transmitter gives a better indication of how hard it is working.

Remember PCSAT2 has no command/control processor. It is only a pair of KPC-9612+ TNC's and we are only using their built-in telemetry and command capability.

You can look at the eight 11111111 bits in EVERY telemetry packet (they are the same) which shows the state of the 8 on/off bits. They are active LOW. So 11111111 means everything is off. They are mostly identical on the A and B side. Each bit is listed at the bottom of the page under "Command Status".

The upper right shows the estimated Latitude/Longitude of the real-time position of ISS NOW (not when the telemety sample was taken).

[ANS thanks Bob, WB4APR, for the above information]

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73,
This week's ANS Editor,
JoAnne Maenpaa, WB9JEJ
WB9JEJ at amsat dot org